UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,303	07/23/2003	T. William Hutchens	016866-002340US	1931

20350 7590 06/14/2005

TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER	
VENCI, DAVID J	

ART UNIT	PAPER NUMBER
1641	

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/626,303	HUTCHENS ET AL.	
	Examiner	Art Unit	
	David J. Venci	1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *March 25, 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24 and 32-70* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *24 and 32-70* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *December 24, 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *07/23/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I in the reply filed on March 25, 2005, is acknowledged.

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Specifically, the specification does not appear to provide proper antecedent basis for "a binding characteristic of the substrate" recited in claim 32. Correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 41-70 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while having enablement for a device having addressable locations on array surfaces, does not reasonably provide enablement for a device having addressable locations on genetic package surfaces, silicon oxide

surfaces, adsorbent surfaces, glycoprotein surfaces, cell surfaces, analyte surfaces, virus surfaces, etc. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

Claim 41 recites "a surface" having "addressable locations." Applicants' specification describes several types of "surfaces", including surfaces on "genetic packages" (see Specification, paragraph [049]), probe surfaces (see Specification, paragraph [130]), silicon oxide surfaces (see Specification, paragraph [177]), adsorbent surfaces (see Specification, paragraph [177]), glycoprotein surfaces (see Specification, paragraph [178]), cell surfaces (see Specification, paragraph [187]), analyte surfaces (see Specification, paragraph [208]), virus surfaces (see Specification, paragraph [294]), protein chip surfaces (see Specification, paragraph [447]), etc. In addition, Applicants' specification describes several types of "locations," including locations on addressable chip (see Specification, paragraph [16]), locations on adsorbents (see Specification, paragraph [17]), locations on arrays (see Specification, paragraph [20]), locations on substrates (see Specification, paragraph [40]), locations on probes (see Specification, paragraph [139]), etc.

Applicants' specification does not describe "addressable locations" on all surfaces. For example, Applicants' specification does not describe "addressable locations" on genetic package surfaces, silicon oxide surfaces, adsorbent surfaces, glycoprotein surfaces, cell surfaces, analyte surfaces, and virus surfaces. It is not clear what physical parameters are required for a determination of "locations" on the aforementioned "surfaces." In addition, it is not clear how "locations" on the aforementioned "surfaces" are "addressable" or distinguishable from a different "location."

According to the decision in *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988), the factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure satisfies the enablement requirement and whether any necessary experimentation is "undue" include:

(A) The breadth of the claims;

(B) The nature of the invention;

(C) The state of the prior art;

(D) The level of one of ordinary skill;

(E) The level of predictability in the art;

(F) The amount of direction provided by the inventor;

(G) The existence of working examples; and

(H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure.

Here, the nature of Applicants' invention, i.e. mass spectrometry probes, does not lend itself to a determination of "addressable locations" on genetic package surfaces, silicon oxide surfaces, adsorbent surfaces, glycoprotein surfaces, cell surfaces, analyte surfaces, and virus surfaces. In addition, the state of the prior art does not appear to recognize the concept of "addressable locations" on genetic package surfaces, silicon oxide surfaces, adsorbent surfaces, glycoprotein surfaces, cell surfaces, analyte surfaces, and virus surfaces. In addition, a person of ordinary skill in the art would not have the requisite skill necessary to determine "addressable locations" on genetic package surfaces, silicon oxide surfaces, adsorbent surfaces, glycoprotein surfaces, cell surfaces, analyte surfaces, and virus surfaces. In addition, Applicants' specification does not appear to provide direction or working examples of the determination of "addressable locations" on genetic package surfaces, silicon oxide surfaces, adsorbent surfaces, glycoprotein surfaces, cell surfaces, analyte surfaces, and virus surfaces. Thus, based on the lack of content in Applicants' disclosure, the quantity of experimentation needed to determine "addressable locations" on genetic package surfaces, silicon oxide surfaces, adsorbent surfaces, glycoprotein surfaces, cell surfaces, analyte surfaces, and virus surfaces is undue.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 24 and 32-70 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 24, the recitation of "an adsorbent whose binding characteristics" is indefinite because it is not clear what object said "adsorbent" is binding. It is not clear whether said "absorbent" is binding an analyte.

In claim 24, the recitation of "whose" is indefinite because it is not clear what noun(s) is/are the object of "whose."

In claim 32, the recitation of "a binding characteristic of the substrate" appears to lack antecedent support in the specification.

In claims 24 and 32, the recitation of "gradient" is indefinite because it is not clear what parameter is subject to variation. It is not clear whether "binding characteristic" is subject to variation. It is not clear what "binding characteristic" is subject to variation when it is not known what object(s) said "adsorbent" is binding.

Claims 24 and 32 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationship is the positioning of "one or more linear axes" with respect to the other structural limitations, e.g. the "substrate" or "surface" or "adsorbent" or "probe." It is not clear whether the "substrate" and/or "surface"

and/or "adsorbent" and/or "probe" have a "linear axis." It is not clear whether/how a person skilled in the art can ascertain said "linear axis."

In claim 41, the recitation of "a surface on the substrate" is indefinite because it is not clear whether "a surface" references the external layer of "the substrate" or whether "a surface" is a physically separate entity from the substrate. In addition, the recitation of "addressable locations" is indefinite because it is not clear whether/how "addressable locations" are located on genetic package surfaces, silicon oxide surfaces, adsorbent surfaces, glycoprotein surfaces, cell surfaces, analyte surfaces, and virus surfaces.

In claim 52, the recitation of "through an inorganic oxide functional group" is indefinite because it is not clear where said "functional group" is located. It is not clear whether the linker comprises a "a functional group" or whether the surface comprises "a functional group."

In claim 55, the recitation of "cross-linked polymer" is indefinite because it is not clear how a polymer is "cross-linked." It is not clear whether said polymer is "cross-linked" through a process of polymerization, or whether said "cross-linked polymer" is linked to a bifunctional linker. In addition, the recitation of "through a functional group" is indefinite because it is not clear where said "functional group" is located. It is not clear whether the polymer comprises a "a functional group" or whether the surface comprises "a functional group."

In claim 56, the recitation of "dextran carboxymethyl dextran" appears grammatically awkward because it is not clear whether the recited polymer comprises "dextran."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 24 and 32-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchens & Yip (WO 94/28418) in view of Vestal (US 5,498,545).

Hutchens & Yip describe a probe (see Abstract, "sample probe") that is removably insertable into a MALDI spectrometer (see p. 9, lines 14-15, "sample presenting means removably insertable into said spectrometer tube") comprising a substrate having a surface (see p. 9, lines 14-15, "sample presenting means") and an adsorbent bound to the surface (see p. 9, lines 18-19, "energy absorbing molecule, affinity capture device, photolabile attachment molecule and combinations thereof") wherein a binding characteristic of the substrate varies (see p. 42, lines 5-7, "the affinity devices are arranged in predetermined arrays... the arrays selectively absorb a plurality of different analytes", see p. 44, lines 21-24, "the photolabile attachment molecules are arranged in predetermined arrays... the arrays selectively absorb a plurality of different analytes") along one or more linear axes.

Hutchens & Yip do not describe a device having "one or more linear axes."

However, Vestal describes a mass spectrometer probe comprising linear axes (see Fig. 1). Therefore, it would have been obvious for a person of ordinary skill in the art to modify the mass spectrometer probe, as described by Hutchens & Yip, to include one or more linear axes because Vestal discovered that a mass spectrometer probe comprising a plurality of one or more linear axes of addressable locations will "substantially reduce both the time and expertise required to load, run, and analyze multiple samples, thereby significantly reducing the cost of the analysis" (see col. 2, lines 25-28).

With respect to claim 34, Hutchens & Yip describe a probe wherein the adsorbent is an anion exchange adsorbent (see p. 78, line 6, "DEAE gel").

With respect to claim 35, Hutchens & Yip describe a probe wherein the adsorbent is a cation exchange adsorbent (see p. 28, lines 24-25, "ionic (+/-) bonds... positively... charged groups on a protein surface").

With respect to claim 36, Hutchens & Yip describe a probe wherein the adsorbent is a hydrophilic adsorbent (see p. 78, line 6, "DEAE gel") (see p. 28, lines 24-25, "ionic (+/-) bonds) (see p. 52, lines 13+).

With respect to claim 37, Hutchens & Yip describe a probe wherein the adsorbent is a hydrophobic adsorbent (see p. 78, line 16, "aminomethylated polystyrene").

With respect to claim 38, Hutchens & Yip describe a probe wherein the adsorbent is a metal chelate (see p. 52, lines 13+).

Claims 41-51, 54-55 and 57-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchens & Yip, 7 RAPID COMMUN. MASS SPECTROM. 576 (1993), in view of Vestal (US 5,498,545).

Hutchens & Yip describe a mass spectrometer probe comprising a substrate comprising metal (see p. 577, col. 1, second paragraph, "stainless-steel probe") coated with silicon oxide (see p. 579, col. 2, third full paragraph, line 3, "glass"), a surface (see p. 579, col. 2, third full paragraph, line 1, "probe element surfaces"), and an adsorbent attached to the surface (see p. 577, col. 2, third full paragraph, "affinity-capture sample-presenting surface").

Hutchens & Yip do not describe "a plurality of addressable locations" recited in claims 1, 50, 64, 66, 68 and 70.

However, Vestal teaches a mass spectrometer probe comprising a plurality of addressable locations (see Abstract, "plurality of sample supports"). Therefore, it would have been obvious for a person of ordinary skill in the art to modify the mass spectrometer probe, as described by Hutchens & Yip, with a plurality of addressable locations because Vestal discovered that a mass spectrometer probe comprising a plurality of addressable locations will "substantially reduce both the time and expertise required to load, run, and analyze multiple samples, thereby significantly reducing the cost of the analysis" (see col. 2, lines 25-28).

With respect to claims 42-49, 57-63, 65, 67 and 69, Hutchens & Yip describe a mass spectrometer probe wherein the adsorbent is an anion exchange adsorbent (see p. 580, col. 1, line 7, "anionic"), a cation exchange adsorbent (see p. 580, col. 1, line 7, "cationic"), a hydrophilic adsorbent (see p. 580, col. 1, line 7, "cationic, anionic"), a hydrophobic adsorbent (see p. 580, col. 1, line 7, "hydrophobic"), a metal chelate adsorbent (see p. 580, col. 1, line 5, "metal ions"), a reversible covalent interaction adsorbent (see p. 580, col. 1, line 6, "reducing reagents"), a biospecific adsorbent (see p. 580, col. 1, line 2, "proteins"), and silicon oxide (see p. 579, col. 2, third full paragraph, line 3, "glass").

With respect to claims 51 and 54, Hutchens & Yip describe a mass spectrometer probe wherein the surface (see p. 577, col. 2, first full paragraph, lines 11, "agarose surface") is derivatized with a bifunctional linker (see p. 577, col. 2, first full paragraph, lines 4-5, "N-hydroxysuccinimide") that is derivatized with an adsorbent (see p. 577, col. 2, first full paragraph, line 1, "a-cyano-4-hydroxycinnamic acid", line 13, "energy-absorbing/sample-presenting surface").

With respect to claim 55, Hutchens & Yip describe a mass spectrometer probe wherein a cross-linked polymer (see p. 577, col. 2, first full paragraph, line 3, "crosslinked agarose") is bound to the surface (see p. 579, col. 2, third full paragraph, line 1, "probe element surfaces") through a functional group (see p.

579, col. 2, third full paragraph, line 3, "glass") and wherein the adsorbent (see p. 577, col. 2, first full paragraph, line 1, "a-cyano-4-hydroxycinnamic acid", line 13, "energy-absorbing/sample-presenting surface") is bound to the polymer.

Claims 52-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchens & Yip, 7 RAPID COMMUN. MASS SPECTROM. 576 (1993), and Vestal (US 5,498,545) as applied to claims 41-48 and 51, and further in view of Miller (US 3,669,841).

Hutchens & Yip and Vestal describe a mass spectrometer probe as substantially described supra. The aforementioned references do not teach a bifunctional linker attached to a surface through an inorganic oxide functional group.

However, Miller uses aminopropyl triethoxysilane (see col. 1, lines 70+) to attach enzymes to glass surfaces (see col. 1, line 50) through an inorganic oxide functional group. Therefore, it would have been obvious for a person of ordinary skill in the art to modify the glass mass spectrometer probe, as described by Hutchens & Yip and Vestal, with a bifunctional linker attached to a surface through an inorganic oxide functional group because Miller discovered "reusable, long-acting enzymatically-active composites" (see col. 1, lines 40-41).

Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchens & Yip, 7 RAPID COMMUN. MASS SPECTROM. 576 (1993), and Vestal (US 5,498,545) as applied to claims 41-48 and 55, and further in view of Nelson et al. (US 5,955,729).

Hutchens & Yip and Vestal describe a a mass spectrometer probe as substantially described supra. The aforementioned references do not teach a polymer comprising cellulose, dextran carboxymethyl dextran or polyacrylamide.

However, Nelson et al. use carboxymethyl dextran (see col. 3, line 66) for a mass spectrometer probe (see col. 4, lines 1-9). Therefore, it would have been obvious for a person of ordinary skill in the art to modify the mass spectrometer probe, as described by Hutchens & Yip and Vestal, with carboxymethyl dextran because Nelson et al. discovered that probe surfaces, including carboxymethyl dextran surfaces, can be used to capture and retain ligands for real-time analysis (see Abstract, "capturing an analyte... by an interactive surface layer on a real-time interaction analysis sensor") while retaining compatibility with desorption/ionization techniques (see col. 12, lines 47-50).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969). A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b). Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 24, 32-33 and 39-40 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 15 and 18 of US 5,719,060 in view of Vestal (US 5,498,545).

Claim 15 of US 5,719,060 recites a mass spectrometer probe ("sample probe") comprising a substrate ("sample presentation surface"), a surface ("presentation surface"), and an adsorbent attached to the surface ("affinity capture device"). Claim 15 of US 5,719,060 does not recite a device having "one or more linear axes."

However, Vestal describes a mass spectrometer probe comprising linear axes (see Fig. 1). Therefore, it would have been obvious for a person of ordinary skill in the art to modify the mass spectrometer probe, as described by Hutchens & Yip, to include one or more linear axes because Vestal discovered that a mass spectrometer probe comprising a plurality of one or more linear axes of addressable locations will "substantially reduce both the time and expertise required to load, run, and analyze multiple samples, thereby significantly reducing the cost of the analysis" (see col. 2, lines 25-28).

Claims 34-38 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 15 and 18 of US 5,719,060 and Vestal (US 5,498,545) as applied to claims 32-33, and further in view of Hutchens & Yip (WO 94/28418).

Claims 15 and 18 of US 5,719,060 and Vestal describe a mass spectrometer probe as substantially described supra. The aforementioned references do not claim or describe an anion exchange adsorbent, a cation exchange adsorbent, a hydrophilic adsorbent, a hydrophobic adsorbent, and a metal chelate absorbent.

However, Hutchens & Yip describe a probe wherein the adsorbent is an anion exchange adsorbent (see p. 78, line 6, "DEAE gel"), a cation exchange adsorbent (see p. 28, lines 24-25, "ionic (+/-) bonds... positively... charged groups on a protein surface"), a hydrophilic adsorbent (see p. 78, line 6, "DEAE gel") (see p. 28, lines 24-25, "ionic (+/-) bonds) (see p. 52, lines 13+), a hydrophobic adsorbent (see p. 78, line 16, "aminomethylated polystyrene"), and a metal chelate adsorbent (see p. 52, lines 13+). Therefore, it would have been obvious for a person of ordinary skill in the art to modify the mass spectrometer probe, as claimed in US 5,719,060, with the added adsorbents because Hutchens & Yip discovered that such probes enable the selective capture and desorption of analytes directly from the probe surface without added chemical matrix (see Abstract).

Claims 41-51, 54-55 and 57-70 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 16 of US 5,719,060 in view of Hutchens & Yip, 7 RAPID COMMUN. MASS SPECTROM. 576 (1993).

Claim 16 of US 5,719,060 recites a mass spectrometer probe ("sample probe") comprising a substrate ("sample presentation surface"), a surface ("presentation surface"), and an adsorbent attached to the surface ("affinity capture device") at a plurality of addressable locations ("predetermined arrays"). Claim 16 of US 5,719,060 does not recite a substrate comprising metal coated with silicon or titanium oxide or silicon.

However, Hutchens & Yip describe a substrate comprising metal (see p. 577, col. 1, second paragraph, "stainless-steel probe") coated with silicon oxide (see p. 579, col. 2, third full paragraph, line 3, "glass"). Therefore, it would have been obvious for a person of ordinary skill in the art to modify the mass spectrometer probe, as claimed in US 5,719,060, with the added limitation of a substrate comprising

metal coated with silicon or titanium oxide or silicon because Hutchens & Yip discovered that such probes efficiently desorb macromolecular analytes (see p. 578, col. 1, first full paragraph, lines 1-5).

Claims 52-53 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 16 of US 5,719,060 and Hutchens & Yip, 7 RAPID COMMUN. MASS SPECTROM. 576 (1993), as applied to claims 41-48 and 51, and further in view of Miller (US 3,669,841).

Claim 16 of US 5,719,060 and Hutchens & Yip describe a mass spectrometer probe as substantially described supra. The aforementioned references do not teach a bifunctional linker attached to a surface through an inorganic oxide functional group.

However, Miller uses aminopropyl triethoxysilane (see col. 1, lines 70+) to attach enzymes to glass surfaces (see col. 1, line 50) through an inorganic oxide functional group. Therefore, it would have been obvious for a person of ordinary skill in the art to modify the glass mass spectrometer probe, as described in claim 16 of US 5,719,060 and Hutchens & Yip, with a bifunctional linker attached to a surface through an inorganic oxide functional group because Miller discovered "reusable, long-acting enzymatically-active composites" (see col. 1, lines 40-41).

Claim 56 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 16 of US 5,719,060 and Hutchens & Yip, 7 RAPID COMMUN. MASS SPECTROM. 576 (1993), as applied to claims 41-48 and 55, and further in view of Nelson et al. (US 5,955,729).

Claim 16 of US 5,719,060 and Hutchens & Yip describe a mass spectrometer probe as substantially described supra. The aforementioned references do not teach a polymer comprising cellulose, dextran carboxymethyl dextran or polyacrylamide.

However, Nelson et al. use carboxymethyl dextran (see col. 3, line 66) for a mass spectrometer probe (see col. 4, lines 1-9). Therefore, it would have been obvious for a person of ordinary skill in the art to modify the mass spectrometer probe, as described in claim 16 of US 5,719,060 and Hutchens & Yip, with carboxymethyl dextran because Nelson et al. discovered that probe surfaces, including carboxymethyl dextran surfaces, can be used to capture and retain ligands for real-time analysis (see Abstract, "capturing an analyte... by an interactive surface layer on a real-time interaction analysis sensor") while retaining compatibility with desorption/ionization techniques (see col. 12, lines 47-50).

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David J. Venci whose telephone number is 571-272-2879. The examiner can normally be reached on 08:00 - 16:30 (EST). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on 571-272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David J Venci
Examiner
Art Unit 1641

djv

LONG V. LE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600
06/10/05